Before the FEDERAL COMMUNICATIONS COMMISSION Washington, DC 20554

| In the Matter of |) | |
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| Expanding Flexible Use of the 3.7 GHz to 4.2 GBand | GHz) | GN Docket No. 18-122 |
| Band | , | |

COMMENTS OF T-MOBILE USA, INC.

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May 31, 2018

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COMMENTS OF T-MOBILE USA, INC.

T-Mobile USA, Inc. ("T-Mobile")^{1/} submits these comments in response to the Public Notice^{2/} the Commission issued pursuant to Section 605(b) of the Making Opportunities for Broadband Investment and Limiting Excessive and Needless Obstacles to Wireless Act ("MOBILE NOW Act")^{3/} to prepare its report on the feasibility of commercial wireless service use of the 3.7-4.2 GHz band ("MOBILE NOW Act Report"). The Commission should issue a Notice of Proposed Rulemaking ("NPRM") and then a Report and Order in the above-referenced proceeding and incorporate that action in the MOBILE NOW Act Report. In that proceeding, the Commission should make the 3.7-4.2 GHz band available for exclusive, licensed commercial services to support the deployment of fifth generation ("5G") mobile wireless broadband technologies.

T-Mobile USA, Inc. is a wholly owned subsidiary of T-Mobile US, Inc., a publicly traded company.

Office of Engineering and Technology, International, and Wireless Telecommunications Bureaus Seek Comment for Report on the Feasibility of Allowing Commercial Wireless Services, Licensed or Unlicensed, to Use or Share Use of the Frequencies Between 3.7-4.2 GHz, Public Notice, DA 18-446 (rel. May 1, 2018) ("Public Notice").

Consolidated Appropriations Act, 2018, Pub. L. No. 115-141, Division P, the Repack Airwaves Yielding Better Access for Users of Modern Services ("RAY BAUM'S") Act. Title VI of the RAY BAUM'S Act is the MOBILE NOW Act.

I. INTRODUCTION AND SUMMARY

T-Mobile, including the MetroPCS brand, offers nationwide wireless voice, text, and data services to 74 million subscribers. In the first quarter of 2018, T-Mobile added 1.4 million net customers – marking twenty straight quarters of adding more than 1 million customers every quarter. T-Mobile also saw continued growth in postpaid phone customers – with postpaid net additions expected to lead industry for the seventeenth consecutive quarter – and continued success at MetroPCS.

Numerous wireless providers have announced plans to deploy 5G, and the global race to 5G continues to accelerate. Consumers' mobile device use is driving the ever-increasing demand for mobile network capacity. In the last two years, consumer demand for wireless broadband use has tripled to over 13.7 trillion megabytes, ^{8/} and this extreme growth trend will continue or even accelerate as new use cases emerge. 5G will help providers meet these demands. Globally, 5G will contribute an estimated \$12.3 trillion dollars and 22 million jobs. ^{9/} Identifying new spectrum opportunities is therefore important for the U.S. to maintain its leadership in 5G.

In the U.S., 5G will need a full complement of spectrum to provide mobile 5G to consumers nationwide. As the Commission has recognized, wireless providers will need access

See T-Mobile News Release, *T-Mobile Celebrates 5 Years as a Public Company with Record-Low Churn, Industry-Leading Customer Growth, and Strong Profitability* (May 1, 2018), https://newsroom.t-mobile.com/news-and-blogs/q1-2018-earnings.htm.

^{5/} See id.

^{6/} See id.

^{7/} See id.

ACCENTURE, HOW THE WIRELESS INDUSTRY POWERS THE U.S. ECONOMY 6 (2018), https://api.ctia.org/wp-content/uploads/2018/04/Accenture-Strategy-Wireless-Industry-Powers-US-Economy-2018-POV.pdf.

DAVID ABECASSIS, CHRIS NICKERSON, & JANETTE STEWART, GLOBAL RACE TO 5G – SPECTRUM AND INFRASTRUCTURE PLANS AND PRIORITIES 7 (2018), https://api.ctia.org/wp-content/uploads/2018/04/Analysys-Mason-Global-Race-To-5G_2018.pdf.

to a combination of low-, mid-, and high-band spectrum assets for 5G networks.^{10/} The 3.7-4.2 GHz band can help meet mid-band spectrum needs. Mid-band spectrum, specifically the 3.7-4.2 GHz band, is ideally situated for 5G because of the potential for international harmonization, the availability for large bandwidth channelization, and the band's proximity to other spectrum being evaluated for mobile wireless broadband use. The 3.7-4.2 GHz band also provides a balance of capacity and coverage. Because of its propagation characteristics, global equipment manufacturers have identified the 3.7-4.2 GHz band as a band in which vendors expect to soon launch 5G equipment and technology.^{11/}

T-Mobile therefore appreciates the Commission's continued focus on making mid-band spectrum, in general, and the 3.7-4.2 GHz band, in particular, available for terrestrial services. The Commission must view Congressional interest in the 3.7-4.2 GHz band – expressed through Section 605(b) of the MOBILE NOW Act and other provisions directing the Commission and NTIA to examine potential use of portions of the 3 GHz band – through the lens of what the Commission has already accomplished and not permit the preparation and submission of the required report to delay action on the band. That was Commissioner O'Rielly's assessment of the *Public Notice*, and T-Mobile agrees. ^{12/} The deadline for the MOBILE NOW Act Report should also serve as an informal marker for Commission action in this proceeding, allowing the

Policies Regarding Mobile Spectrum Holdings, Report and Order, 29 FCC Rcd 6133, ¶ 18 (2014) ("As providers deploy next-generation mobile networks, the engineering properties and deployment capabilities of the mix of particular spectrum bands in providers' holdings have become increasingly important."); see also Commissioner Michael O'Rielly, A Mid-Band Spectrum Win in the Making, FCC (July 10, 2017; 2:30 PM), https://www.fcc.gov/news-events/blog/2017/07/10/mid-band-spectrum-win-making.

ABECASSIS, NICKERSON, & STEWART, *supra* note 9, at 5.

Statement of Commissioner Michael O'Rielly on 3.7-4.2 GHz Public Notice, FCC (May 1, 2018) ("I am pleased to see this important step forward in our process, as it will complement and not delay the Commission's ongoing work on the matter.").

Commission to adopt an NPRM and then present the Report and Order it adopts as a result as part of the MOBILE NOW Act Report.

II. THE COMMISSION SHOULD MAKE ITS RULEMAKING PROCEEDING A PART OF THE CONGRESSIONALLY REQUIRED REPORT

Section 605(b) of the MOBILE NOW Act requires the Commission to assess "the feasibility of allowing commercial wireless services, licensed or unlicensed" in the 3.7-4.2 GHz band and submit a report to Congress on its findings by September 2019.^{13/} The Commission seeks comment on the factors it should consider in preparing its report on the feasibility of permitting commercial wireless services in the 3.7-4.2 GHz band.^{14/} T-Mobile urges the Commission to make a Report and Order, based on responses to an NPRM in this proceeding, the basis of the MOBILE NOW Act Report.

The Commission has already taken steps that may lead to exactly what Section 605 of the MOBILE NOW Act addresses – the potential reallocation of the 3.7-4.2 GHz band. Last year, it released a Notice of Inquiry ("NOI") regarding the potential use of mid-band spectrum, including the 3.7-4.2 GHz band, for 5G systems. ^{15/} Generally, the NOI sought comment on: "the potential for more intensive use of the 3.7-4.2 GHz band for wireless broadband," whether "the 3.7-4.2 GHz band is well-suited for future mobile broadband deployments," and proposed "mechanisms for sharing" with incumbents. ^{18/} In addition to the NOI, the Commission released two other items – a Public Notice initiating this proceeding, separating the 3.7-4.2 GHz band

Consolidated Appropriations Act, 2018, Pub. L. No. 115-141, § 605(b) (the MOBILE NOW Act).

Public Notice at 1-2.

Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, GN Docket No. 17-183, Notice of Inquiry, 32 FCC Rcd 6373 (2017).

^{16.} Id. ¶ 16.

^{17/} *Id.* ¶ 19.

Id. ¶ 18.

from its more general consideration of mid-band spectrum,^{19/} and another Public Notice announcing a freeze on earth station registrations in the band and seeking additional information regarding incumbent satellite earth station use of the band.^{20/} The Commission is expected to release an NPRM proposing rules for terrestrial use of the 3.7-4.2 GHz band in the coming months, and following the NPRM, the Commission will likely release a Report and Order.

Section 605(b) of the MOBILE NOW Act covers the same ground. It directs the Commission to discuss the following topics in the MOBILE NOW Report: the Federal entities that operate the Federal Government stations authorized to use the frequencies, the impact of sharing on incumbent Federal and non-Federal users, the criteria necessary to ensure that licensed or unlicensed services do not cause harmful interference, and the identification of the frequencies most suitable for sharing with commercial wireless services. These issues precisely overlap with those outlined in the NOI, those expected to be discussed in the NPRM, and those addressed in the two other items. Accordingly, the Commission can satisfy the requirement of the MOBILE NOW Act Report in a Report and Order that follows from an NPRM in this proceeding. The deadline by which the MOBILE NOW Act Report must be submitted to Congress – September 2019 – is over a *year* after the Commission is likely to issue an NPRM in this proceeding. By that time, the Commission will have received and reviewed

Expanding Flexible Use of the 3.7-4.2 GHz Band, Wireless Telecommunications Bureau, International Bureau, and Office of Engineering and Technology Establish, Public Notice, DA 18-396 (rel. Apr. 19, 2018).

Temporary Freeze on Applications for New or Modified Fixed Satellite Service Earth Stations and Fixed Microwave Stations in the 3.7-4.2 GHz Band, 90-Day Window to File Applications for Earth Stations Currently Operating in the 3.7-4.2 GHz Band, Public Notice, DA 18-398 (rel. Apr. 19, 2018). The Mobile applauds the Commission's efforts to fully evaluate incumbent use of the 3.7-4.2 GHz band, given that the Commission's licensing records likely contain an inaccurate picture of spectrum used by FSS and FS operations.

^{21/} MOBILE NOW Act, § 605(c).

comments and other input from interested stakeholders. The Commission should therefore satisfy the MOBILE NOW Act Report requirement by releasing an NPRM and issuing a Report and Order and noting that the issues are addressed therein. Preparing a distinct report for the purpose of satisfying Section 605 of the MOBILE NOW Act would be administratively inefficient.

III. THE 3.7-4.2 GHz BAND SHOULD BE MADE AVAILABLE FOR EXCLUSIVE, LICENSED COMMERCIAL SERVICES

The Commission seeks comment on whether commercial wireless services should use or share use of the band with incumbents or other terrestrial technologies.^{22/} As explained below, limited shared use of the band is achievable, but flexible use of the band for terrestrial services would better serve the public interest.

A. Designation of Spectrum in the 3.7-4.2 GHz Band is Critical to Ensure U.S. 5G Competitiveness.

As T-Mobile has noted before, other administrations around the world are making midband spectrum available for 5G operations.^{23/} By 2020, nearly thirty countries, including nearly all European countries, will have allocated at least some mid-band spectrum for terrestrial mobile services.^{24/} For example, Ireland and the United Kingdom, which have moved more quickly than the U.S., have already auctioned spectrum between 3.4 and 3.8 GHz to mobile operators.^{25/}

Reply Comments of T-Mobile USA, Inc., GN Docket No. 17-183, at 3 (filed Nov. 15, 2017); Comments of T-Mobile USA, Inc., GN Docket No. 17-183, at 7-10 (filed Oct. 2, 2017).

Public Notice at 2.

Patrick Gahan, Europe Leads in 3.5 GHz Assignments with Patchy Progress in Other Regions, POLICYTRACKER, Mar. 9, 2018.

Commission for Communication Regulation, *Results of the 3.6 GHz Band Spectrum Award*, Information Notice, ComReg 17/38 (May 22, 2017), https://www.comreg.ie/media/dlm_uploads/2017/05/ComReg-1738.pdf; Ofcom, *Award of 2.3 and 3.4 GHz Spectrum Bands - Publication under Regulation 111 of the Wireless Telegraphy (Licence Award), Regulations 2018 of Results of Auction* (Apr. 13, 2018),

France has assigned frequencies in the 3.4-3.8 GHz band on an experimental basis for 5G pilots, ^{26/} and Italy has announced plans to auction and award licenses in the 3.6-3.8 GHz band by December 1, 2018.^{27/} Other countries are considering the use of spectrum above 3.8 GHz for mobile operations. The United Kingdom, for example, sought comment on permitting mobile services in the 3.8-4.2 GHz band and subsequently announced that it will publish a consultation on sharing in the 3.8-4.2 GHz band by the end of 2018.^{28/} Australia notified incumbents and fixed licensees in the 3.7-4.2 GHz band that it may review use of the band for mobile broadband operations.^{29/} And, given international interest in mid-band spectrum, the development of a 5G global ecosystem, and the decline of FSS use, Canada sought comment on making spectrum up to 4.2 GHz available for mobile broadband operations within the next five years.^{30/}

 $https://www.ofcom.org.uk/__data/assets/pdf_file/0018/112932/Regulation-111-Final-outcome-of-award.pdf.\\$

Arcep, 5G, Frequencies and Innovation (Jan. 16, 2018), https://www.arcep.fr/index.php?id=8571&no_cache=1&L=1&no_cache=1&tx_gsactualite_pi1%5Buid%5D=2119&tx_gsactualite_pi1%5Bannee%5D=0&tx_gsactualite_pi1%5Btheme%5D=0&tx_gsactualite_pi1%5Bmotscle%5D=5G&tx_gsactualite_pi1%5BbackID%5D=2122&cHash=61923bc6f0863095130f62d 2face6136.

Agcom, Public Consultation on Allocation Procedures and Rules for the Use of Frequencies Available in the 694-790 MHz, 3600-3800 MHz, and 26.5-27.5 GHz Bands for Terrestrial Electronic Communications Systems in Order to Facilitate the Transition to 5G Technology, Pursuant to the law of 27 December 2017, 89, Resolution No. 89/18/CONS (Feb. 26, 2018), https://www.agcom.it/documents/10179/9509516/Allegato+5-3-2018+1520268665353/d1eaff45-c62d-4723-b30d-03ef6176e39b?version=1.0.

Ofcom, 3.8 GHz to 4.2 GHz band: Opportunities for Innovation, Call for Input, ¶ 2.3 (Apr. 14, 2016), https://www.ofcom.org.uk/__data/assets/pdf_file/0031/79564/3.8-GHz-to-4.2-GHz-band-Opportunities-for-Innovation.pdf; Ofcom, *Review of the Authorization Regime for Spectrum Access* (Dec. 7, 2017), https://www.ofcom.org.uk/__data/assets/pdf_file/0019/108604/Review-of-the-authorisation-regime-for-spectrum-access.pdf.

Australian Communications and Media Authority, *Future Use of the 3.6 GHz Band – Decisions and Preliminary Views*, 41 (Oct. 2017), https://www.acma.gov.au/theACMA/future-approach-to-the-3_6-ghz-band.

Innovation, Science, and Economic Development of Canada, *Consultation on the Spectrum Outlook 2018 to 2022*, 30, 34 (Oct. 6, 2017), https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/Consultation-Outlook-2017-eng.pdf/\$file/Consultation-Outlook-2017-eng.pdf.

Similar U.S. action will ensure U.S. competitiveness and secure the benefits of global harmonization. The Commission must harmonize the band with international designations in order to remain a leader in 5G development. Global spectrum harmonization of the band for 5G deployments will be beneficial for the mobile wireless ecosystem, as it will produce a robust equipment market, which will benefit U.S. consumers of mobile wireless broadband products and services.

In order to help establish the U.S.'s global leadership in 5G, the Commission should expeditiously allocate the 3.7-4.2 GHz band for mobile broadband use on a flexible basis. Adoption of flexible rules will permit a range of terrestrial technologies to be deployed in the band, including the fixed and point-to-multipoint operations for which the Broadband Access Coalition and others advocate, while enabling the maximum amount of spectrum to be made available for mobile broadband use.^{31/}

While T-Mobile appreciates the Commission's action to date to make mid-band spectrum available at 3.5 GHz, that spectrum cannot support the type of deployment necessary for full mobile 5G operations.^{32/} For example, facilities using so-called Category B antennas will be restricted to a maximum EIRP of 47 dBm/10 megahertz (or 50W), while those using Category A antennas will be limited to a maximum EIRP of 30 dBm/10 megahertz (1W).^{33/} This is compared to the typical power of 60 dBm (1000W). That is why the Commission must go

See, e.g., Comments of Broadband Access Coalition, GN Docket No. 17-183, at 4 (filed Oct. 2, 2017); Comments of Frontier Communications Corporation, Windstream Services, LLC, and Consolidated Communications, Inc., GN Docket No. 17-183, at 3-4 (filed Oct. 2, 2017); Comments of GeoLinks, GN Docket No. 17-183, at 2 (filed Oct. 2, 2017).

See Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band, GN Docket No. 12-354, Order on Reconsideration and Second Report and Order, 31 FCC Rcd 5011 (2016).

^{33/} See 47 C.F.R. § 96.41.

further and make additional mid-band spectrum available for terrestrial mobile use under typical licensed spectrum parameters.

B. Non-Federal and Federal Incumbent Operations Can Be Addressed.

Incumbent use of the 3.7-4.2 GHz band should not preclude the Commission from dedicating the band for wireless broadband services. Existing fixed service ("FS") operations in the 3.7-4.2 GHz band are limited and declining.^{34/} Fixed satellite service ("FSS") use of the band is likely overstated and difficult to determine due to the band's full-band, full-arc licensing policy and licensees' tendency not to cancel authorizations.^{35/} As T-Mobile expects will be more fully explored in the anticipated NPRM in this proceeding, these incumbent operations can be accommodated by other technologies, or other spectrum bands through a relocation process. As T-Mobile noted previously, the few remaining FS stations can be relocated using the same process successfully used before for the Personal Communications Service, and most FSS licensees have other transmission options for video content distribution, such as fiber deployment, particularly in urban areas, or migration to other spectrum bands.^{36/}

T-Mobile recognizes that one of the most challenging aspects of converting the 3.7-4.2 GHz band for wireless terrestrial operations will be the relocation of incumbent satellite

^{34/} NOI ¶ 15.

As noted above, the International Bureau, Public Safety and Homeland Security Bureau, and Wireless Telecommunications Bureau released a Public Notice inviting earth station users to register their devices – a process that will provide the Commission with a more complete picture of the FSS use of the band. See Temporary Freeze on Applications for New or Modified Fixed Satellite Service Earth Stations and Fixed Microwave Stations in the 3.7-4.2 GHz Band, 90-Day Window to File Applications for Earth Stations Currently Operating in the 3.7-4.2 GHz Band, Public Notice, DA 18-398 (rel. Apr. 19, 2018).

Comments of T-Mobile USA, Inc., GN Docket No. 17-183, at 14-15 (filed Oct. 2, 2017). T-Mobile has suggested that the Commission work with NTIA evaluate the use of the 7.125-8.4 GHz band for shared federal and non-federal use and that relocated microwave systems be relicensed in that spectrum. *Id.* at 21. The precise mechanisms for accommodating incumbents, however, will be more fully explored in the anticipated NPRM.

operations. While T-Mobile expects that this issue will be more fully addressed in response to the NPRM, it has generally suggested that the Commission should first establish a band plan designating a certain amount of spectrum for auction and then permit incumbent satellite operators to use market mechanisms to retain or sell the remainder of the band for terrestrial use, conditioned upon their assistance in clearing the auctioned segment of the band.^{37/} T-Mobile recognizes that not all 500 megahertz may be available immediately for exclusive terrestrial operations in all locations, but the Report and Order that follows from the NPRM can establish a mechanism for making the maximum amount of spectrum available over time for wireless services.

As noted below, because Federal earth station authorizations use commercial satellite networks, and there is no Federal allocation in the band, any mechanisms that the Commission adopts – whether relating to relocation or protection – should apply to both Federal and non-Federal users alike. The Commission should not impose different requirements, particularly given the limited amount of spectrum.

C. Even Though Section 605 Is Broadly Worded, the Commission Should Focus on Making the 3.7-4.2 GHz Band Exclusive, Licensed Spectrum.

Section 605 requires the Commission to consider whether the 3.7-4.2 GHz band should be available for licensed or unlicensed use and whether the spectrum should be shared. The Report and Order in this proceeding and the MOBILE NOW Act Report that presents the Report and Order should conclude that the band be made available for exclusive, licensed commercial use. There are significant benefits to allocating spectrum for exclusive, licensed use. Licensed

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See Reply Comments of T-Mobile USA, Inc., GN Docket No. 17-183, at 16-17 (filed Nov. 15, 2017). Under T-Mobile's approach, auction winners would be responsible for relocating incumbent licensees to comparable facilities.

spectrum is the foundation of today's robust mobile wireless ecosystem, driving investment, innovation, and competition. Investment by wireless carriers in licensed spectrum has made the U.S. the world's wireless industry leader, facilitated the creation of networks capable of supporting greater speeds and functionalities, and led to new, more powerful and sophisticated devices. Licensed spectrum is also a critical driver of the Nation's economy – for instance, every 10 megahertz of spectrum made available adds \$3 billion to the U.S. Gross Domestic Product and supports approximately 105,000 new jobs. 38/ In order to maintain America's leadership position and to promote further innovation and economic growth, a significant and predictable supply of spectrum must be made available for licensed wireless systems. The Commission has designated other mid-band spectrum for unlicensed use, including general authorized access use at 3.5 GHz, and is further examining unlicensed use of spectrum at 6 GHz. There is therefore no need to designate spectrum at 3.7-4.2 GHz for unlicensed or shared use.

Section 605 of the MOBILE NOW Act directs the Commission to assess the extent to which Federal entities operate Federal Government stations in the 3.7-4.2 GHz band. As the Commission notes in the Public Notice, there is no Federal allocation in the 3.7-4.2 GHz band, and there appears to be limited Federal use of the 3.7-4.2 GHz band today. Based on publicly

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See CTIA, LICENSED SPECTRUM: THE KEY TO CONTINUING AMERICA'S WIRELESS LEADERSHIP AND GROWING OUR ECONOMY 5 (Feb. 2017), https://api.ctia.org/docs/default-source/default-document-library/ctia-white-paper-licensed-spectrum.pdf.

See Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band, GN Docket No. 12-354, Order on Reconsideration and Second Report and Order, 31 FCC Rcd 5011 (2016); NOI ¶¶ 4, 32-36.

MOBILE NOW Act, \S 605(c)(1).

^{41/} Public Notice at 2.

Federal Government Spectrum Use Reports 225 MHz – 7.125 GHz, NTIA, https://www.ntia.doc.gov/page/federal-government-spectrum-use-reports-225-mhz-7125-ghz; 3700-4200 MHz, NTIA, https://www.ntia.doc.gov/files/ntia/publications/compendium/3700.00-4200.00_01DEC15.pdf.

available information, the only Federal use of the 3.7-4.2 GHz band is for earth stations using commercial satellite services. ^{43/} That use should be treated as other non-Federal incumbent earth station use of the spectrum because commercial services are not Federal entities that operate Federal Government stations. As such, these incumbent earth stations should be potentially subject to relocation, use of other technology, over time, just as other incumbent services. As with non-Federal earth stations, it may be feasible to protect remotely located earth stations with minimal coordination and exclusion zones.

Because of the potential future use of the band for commercial wireless operations, T-Mobile urges NTIA to consider restricting additional use of the band. There is no evidence that the band is needed in the future for Federal operation and, based on the current allocation of the band, Federal agencies could not have reasonably anticipated that the band would be available for shared Federal/non-Federal use. Nevertheless, and consistent with Section 610 of the MOBILE NOW Act, the Commission may consider ways to facilitate voluntary sharing between non-Federal licensees of the spectrum and Federal users.^{44/}

IV. CONCLUSION

T-Mobile appreciates the Commission's continued focus on making mid-band spectrum available for terrestrial services. Because Congressional interest in the 3.7-4.2 GHz band, as expressed through Section 605(b) of the MOBILE NOW Act, must be viewed in the context of other Commission proceedings in this area, T-Mobile urges the Commission to adopt an NPRM and then issue a Report and Order in this proceeding and use that activity as the basis of the MOBILE NOW Act Report. In its proceeding stemming from the NPRM, the Commission

MOBILE NOW Act, § 610.

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^{43/} *Id.*

¹⁴

should make the 3.7-4.2 GHz band available for exclusive licensed commercial services to support the deployment of 5G mobile wireless broadband technologies. Incorporating a Commission report in an already-initiated proceeding would be the most administratively efficient course of action.

Respectfully submitted,

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